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10/076,557	02/19/2002	Kohei Mizuno	020193	1392

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ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP  
1725 K STREET, NW  
SUITE 1000  
WASHINGTON, DC 20006

EXAMINER

DOAN, PHUOC HUU

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/076,557

Applicant(s)

MIZUNO ET AL.

Examiner

Phuoc H Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 4 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/9-25-02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 3, 5, 7-8, 10, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Adachi (US 6,256,334).

As to claim 1, Adachi teaches that radio communication system comprising; a plurality of radio stations (Fig. 3, items 1, 2, 3, 4) each radio station managing at least one radio channel for packet radio communication (Fig. 1, items 51, 59, column 9, lines 57-62), each radio station communicating with another radio station either directly or through at least one other radio station (column 9, lines 45-56), each radio station communicating with adjacent radio station in one of centralized control access phase and distributed control access phase for each radio channel (Fig. 3, items 1, 2, 4, 10, column 1, lines 26-40, and column 9 through column 10, lines 51-6), in centralized control access phase, each radio station operating adaptively either as a master station (Fig. 1, items 1, 51, 59, column 11, lines 21-48) which controls transmission right and transmits a signal according to control of the own radio station or as a slave station (Fig. 2, item 70, column 15, lines 45-65) which transmits a signal under control of a master station, for

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each channel (column 11, lines 21-47, column 12, lines 22-44, and column 13, lines 11-22), and said centralized control access phase and said distributed control access phase being switched on time divisional basis for each radio station and for each radio channel (col. 17, lines 15-18).

As to claim 3, Adachi teaches all the limitations of claim 1. In addition, Adachi teaches wherein when a radio station (Fig. 3, item 2) operates in a radio channel as a master station (radio base station Fig. 3, item 1, column 11, lines 21-23), said radio station transmits a beacon packet including an address of said master station (Fig. 5, item 35a, column 2-13), an address of all the slave stations belonging to said master station (Fig. 1, items 51, 59, column 11, lines 24-33) and time until each slave station should transmit a request packet to said master station responsive to said beacon packet (column 11, lines 34-39), for indicating beginning of centralized control access phase (column 11, lines 40-48), and each slave station, upon receipt of said beacon packet, transmits said request packet to said master station at a time instructed by said beacon packet (column 11, lines 49-61).

As to claim 5, Adachi teaches all the limitations of claim 1. Adachi also teaches wherein each radio station performs carrier sense for a predetermined time for each channel (column 13, lines 28-35), when said radio station receives a beacon packet from a master station in a specific radio channel (column 12, lines 22-31), said radio station operates as a slave station belonging to said master station in said radio channel

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(column 11, lines 21-67), when said radio station does not receive a beacon packet from a master station but receives a request packet from a slave station in a specific radio channel (column 17, lines 40-46), said radio station operates as a silent station which is prohibited to transmit a signal during said master station operates in centralized control access phase in said radio channel (column 18, lines 55-65), and afterwards when said radio station receives a contention free end packet from a master station or a slave station (column 21, lines 5-14), said radio station operates in distributed control access phase until a time of next beacon packet indicated in said contention free end packet (column 21, lines 15-39), and when said radio station receives no beacon packet from a master station and no request packet (column 14, lines 24-36), said radio station operates as a master station in said channel in centralized control access phase (column 12, lines 1-63).

As to claim 7, Adachi teaches radio station apparatus in a radio network comprising a plurality of radio stations (Fig. 3, items 1, 2, 3), comprising; each radio station apparatus having at least a radio channel for radio communication (column 9, lines 51-65), each radio station apparatus being able to operate as one of a master station having transmission control right in centralized control access phase, a slave station controlled by a master station, a silent station, and distributed control access phase (column 12 through column 13, lines 41-10).

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As to claim 8, Adachi teaches method for radio communication in a plurality of radio stations (Fig. 2, item 2), each radio station having at least one radio channel for packet radio communication (column 9, lines 45-67), each radio station communicating with another radio station either directly or through at least one other radio station, each radio station communicating with adjacent radio station (Fig. 3, item 10) in one of centralized control access phase and distributed control access phase for each radio channel (column 18, lines 8-21), in case of centralized control access phase, each radio station operating adaptively either as a master station (Fig. 1, item 1) which controls transmission right and transmits a signal according to control of the own radio station or as a slave station (Fig. 2, item 2) which transmits a signal under control of a master station, for each channel (column 11, lines 21-48), and said centralized control access phase and said distributed control access phase being switched on time divisional basis for each radio station and for each radio channel ( column 17, lines 15-18).

As to claim 10, Adachi teaches all the limitations of claim 8. In addition, Adachi teaches wherein when a radio station operates in a radio channel as a master station, said radio station transmits a beacon packet including an address (Fig. 5, item 35a) of said master station, an address of all the slave stations belonging to said master station (Fig. 1, item 59) and time until each slave station (Fig. 2, items 70, 75) should transmit a request packet to said master station responsive to said beacon packet (column 15, lines 45-55), for indicating beginning of centralized control access phase, and each slave station, upon receipt of said beacon packet (column 15, lines 56-61), transmits said request

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packet to said master station at a time instructed by said beacon packet (column 15 through column 16, lines 62-10).

As to claim 12, Adachi teaches all the limitations of claim 8. Adachi also teaches wherein each radio station performs carrier sense for a predetermined time for each channel (column 13, lines 28-35), when said radio station receives a beacon packet from a master station in a specific radio channel (column 12, lines 22-31), said radio station operates as a slave station belonging to said master station in said radio channel (column 11, lines 21-67), when said radio station does not receive a beacon packet from a master station but receives a request packet from a slave station in a specific radio channel (column 17, lines 40-46), said radio station operates as a silent station which is prohibited to transmit a signal during said master station operates in centralized control access phase in said radio channel (column 18, lines 55-65), and afterwards when said radio station receives a contention free end packet from a master station or a slave station (column 21, lines 5-14), said radio station operates in distributed control access phase until a time of next beacon packet indicated in said contention free end packet (column 21, lines 15-39), and when said radio station receives no beacon packet from a master station and no request packet (column 14, lines 24-36), said radio station operates as a master station in said channel in centralized control access phase (column 12, lines 1-63).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2, 6, 9, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi in view of Mizoguchi (Pub. No.: US 2003/0012164).

As to claim 2, Adachi teaches all the limitations of claim 1. However, Adachi does not teach wherein when a radio station A.sub.1 transmits a signal to another radio station An through radio stations A.sub.2, A.sub.3 , , , A.sub.k, A.sub.k+1 , , , A.sub.n-1 (k is an integer larger than 2 and equal to or smaller than n-1), a radio station A.sub.k communicates with a radio station A.sub.k+1 through a radio channel between stations A.sub.k and A.sub.k+1 having relation of a master station and a slave station, or a radio channel between slave stations A.sub.k and A.sub.k+1 controlled by a common master station.

Mizoguchi teaches wherein when a radio station A.sub.1 transmits a signal to another radio station An through radio stations A.sub.2, A.sub.3 , , , A.sub.k, A.sub.k+1 , , , A.sub.n-1 (k is an integer larger than 2 and equal to or smaller than n-1), a radio station A.sub.k communicates with a radio station A.sub.k+1 through a radio channel between stations A.sub.k and A.sub.k+1 having relation of a master station and a slave station (page 4, paragraphs [0038-0048]), or a radio channel between slave stations A.sub.k and A.sub.k+1 controlled by a common master station ( page 5, paragraphs [0049-



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0061]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the relation of a master stations and slave stations as taught by Mizoguchi to modify the systems of Adachi in order to maintain that loop portion between wire networks is continued to be connected, since wireless communication between radio stations is released normal communicating state is held (page 6, paragraph [0067]).

As to claim 6, Adachi teach all the limitations of claim 5. Adachi does not teach wherein when a first radio station receives no beacon packet from a master station, and no request packet, said radio station selects second radio station which is connected to said radio station in another specific radio channel, said first radio station operates as a master station in said specific radio channel and said second radio station operates as a slave station belonging to said master station, or said second radio station operates as a master station and said first radio station operates as a slave station belonging to said master station.

However, Mizoguchi teaches wherein when a first radio station receives no beacon packet from a master station, and no request packet (page 5, paragraph [0053]), said radio station selects second radio station which is connected to said radio station in another specific radio channel (page 5, paragraphs [0054-0055]), said first radio station operates as a master station in said specific radio channel and said second radio station operates as a slave station belonging to said master station (page 5, paragraphs [0056-0057]) , or said second radio station operates as a master station and said first radio

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station operates as a slave station belonging to said master station (page 5, paragraphs [0058-0061]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the operation of a master stations and slave stations as taught by Mizoguchi to modify the system of Adachi in order to attempt detection of master signal every corresponding channel (page 5, paragraph [0056]).

As to claim 9, Adachi teaches all the limitations of claim 8. However, Adachi does not teach wherein when a radio station A.sub.1 transmits a signal to another radio station An through radio stations A.sub.2, A.sub.3 , , , A.sub.k, A.sub.k+1 , , , A.sub.n-1 (k is an integer larger than 2 and equal to or smaller than n-1), a radio station A.sub.k communicates with a radio station A.sub.k+1 through a radio channel between stations A.sub.k and A.sub.k+1 having relation of a master station and a slave station, or a radio channel between slave stations A.sub.k and A.sub.k+1 controlled by a common master station.

Mizoguchi teaches wherein when a radio station A.sub.1 transmits a signal to another radio station An through radio stations A.sub.2, A.sub.3 , , , A.sub.k, A.sub.k+1 , , , A.sub.n-1 (k is an integer larger than 2 and equal to or smaller than n-1), a radio station A.sub.k communicates with a radio station A.sub.k+1 through a radio channel between stations A.sub.k and A.sub.k+1 having relation of a master station and a slave station (page 4, paragraphs [0038-0048]), or a radio channel between slave stations A.sub.k and A.sub.k+1 controlled by a common master station (page 5, paragraphs [0049-0061]). Therefore, it would have been obvious to one of ordinary skill in the art at the

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time the invention was made to provide the relation of a master stations and slave stations as taught by Mizoguchi to modify the systems of Adachi in order to maintain that loop portion between wire networks is continued to be connected, since wireless communication between radio stations is released normal communicating state is held (page 6, paragraph [0067]).

As to claim 13, Adachi teaches all the limitations of claim 12. However, Adachi does not teach wherein when a first radio station receives no beacon packet from a master station, and no request packet, said radio station selects second radio station which is connected to said radio station in another specific radio channel, said first radio station operates as a master station in said specific radio channel and said second radio station operates as a slave station belonging to said master station, or said second radio station operates as a master station and said first radio station operates as a slave station belonging to said master station.

Mizoguchi teaches wherein when a first radio station receives no beacon packet from a master station, and no request packet (page 5, paragraphs [0054-0055]), said radio station selects second radio station which is connected to said radio station in another specific radio channel (page 5, paragraphs [0054-0055]), said first radio station operates as a master station in said specific radio channel and said second radio station operates as a slave station belonging to said master station (page 5, paragraphs [0056-0057]), or said second radio station operates as a master station and said first radio station operates as a slave station belonging to said master station (page 5, paragraphs

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[0058-0061]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the operation of a master stations and slave stations as taught by Mizoguchi to modify the system of Adachi in order to attempt detection of master signal every corresponding channel (page 5, paragraph [0056]).

***Allowable Subject Matter***

3. Claim 4,11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 4, the prior art of record does not teach that radio communication system according to claim 3, wherein a pair of radio stations operating under relation of a master station and a slave station finish centralized control access phase and switch to distributed control access phase, said master station transmits a contention free end packet indicating end of centralized control access phase, said contention free end packet includes end time of said centralized control access phase, time until next beacon packet is transmitted, and instruction whether a slave station receiving said contention free end packet should relay said contention free end packet to another slave station, and a slave station which receives said contention free end packet transmits the other contention free end packet to said master station at

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a time indicated by said contention free end packet sent by the master station, so that centralized control access phase switches to distributed control access phase.

As to claim 11, the prior art of record does not teach that a method for radio communication according to claim 10, wherein a pair of radio stations operating under relation of a master station and a slave station finish centralized control access phase and switch to distributed control access phase, said master station transmits a contention free end packet indicating end of centralized control access phase, said contention free end packet includes end time of said centralized control access phase, time until next beacon packet is transmitted, and instruction whether a slave station receiving said contention free end packet should relay said contention free end packet to another slave station, and a slave station which receives said contention free end packet transmits the other contention free end packet to said master station at a time indicated by said contention free end packet sent by the master station, so that centralized control access phase switches to distributed control access phase.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuoc H Doan whose telephone number is 703-305-6311. The examiner can normally be reached on 9:30-6:30.

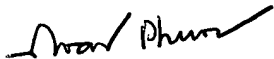
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung A Nay can be reached on 703-308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuoc Doan

06/03/04

  
**NAY MAUNG**  
**SUPERVISORY PATENT EXAMINER**